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Improve Your Woodlot by Cutting Firewood

U.S.D.A., FOREST SERVICE
NORTHEASTERN AREA
STATE & PRIVATE FORESTRY
BROOMALL, PA 19008

INTRODUCTION

Over the centuries, wood has been a major source of fuel and heat. Our forefathers revered wood and used it to fill every need from heating their homes to making tools. They made maximum use of the back woodlot.

The choice of wood for fuel was not only logical, but a most natural one, for trees are a renewable resource. They can be harvested periodically without permanent disturbance to the natural environment.

Only in the last fifty years or less has wood lost this important role. As a nation, we shifted to the convenient fuels: oil and natural gas. Ironically, it is our heavy dependence on these nonrenewable resources that created the shortages and exhorbitant prices of today's energy crisis. Consequently, wood has come into its own again, as more and more people look to the woods for the traditional source of heat.

The renewed use of wood for fuel creates an opportunity to correct some of our past mistakes. Our woodlots have been mismanaged, overcut, or often neglected. Past cutting practices left our woodlands with an overabundance of crooked, diseased, and otherwise unsaleable trees. These hamper the growth of the more desirable individuals, the straight, and healthy trees that are needed for lumber and veneer. To establish a good forestry program, the first step is to remove these less desirable trees for fuelwood, especially those trees that compete with the best crop trees.

THINNING HARDWOOD STANDS

Trees need room to grow at their maximum rates. If too close together, they compete for water, nutrients, and sunlight, and grow more slowly. A young stand of trees starts with 4000 to

6000 stems per acre. At maturity, when they measure about 20 inches in diameter, less than 100 trees per acre will survive. Most of the young trees die before they are large enough to harvest for sawlogs.

This is a natural selection process and it is slow, requiring 150 to 200 years or more to complete. Thinning hardwood stands when they are young hastens the process by permitting the more desirable trees to grow rapidly throughout their lives. Removing competing trees by frequent thinnings enables the stand to produce larger, higher quality trees. This promotes a greater volume of wood per acre in a reduced period of time—much less than 100 years.

Before thinning your hardwood stand, know the value of the trees you are thinning. As a rule sugar maple, ash, white and yellow birch, are more valuable than red maple, beech, or aspen (poplar); oaks are more valuable than the hickories. Check with your forester for advice on this point and for hints on tree identification.

You should begin thinning as early as possible to gain the benefits of repeated thinnings. The best time to start thinning a hardwood stand is when the trees average between 4 to 10 inches in diameter at breast height (4½ feet above ground). Trees of this size class, commonly referred to as poles, respond rapidly to thinning. At that point in life, intense competition from surrounding trees starts to slow their growth. (See figure 1.)

This does not mean that stands of larger size trees, averaging 10 to 12 inches, should not be thinned. Such hardwood stands are, however, approaching commercial sawtimber size. In most cases, the thinnings can be sold as sawlogs. Before doing anything in these stands of larger trees, you should get technical assistance from the local service forester or a consultant forester. These professionals will help you select the trees to be cut and those that should be left for future growth.

Figure 1.–A young stand of hardwood in need of thinning. In this stand a number of trees are unable to reach full sunlight. These "suppressed" trees, will naturally die and drop out of the stand.

SELECTING CROP TREES

The best way to thin a young polestand is the "crop tree selection method". This is a simple method for thinning stands to the greatest advantage of the best trees in the stand. Cut competing trees for firewood.

The trees selected as crop trees should be of valuable species. They will probably be the most valuable individuals in the stand. They should be straight and tall with relatively small branches, and should show signs of self-pruning: the lower 10 to 16 feet of the tree should have few or no branches. A few small dead branches in this section are a good indication that the tree will develop into a good quality tree, free of defects. (See figures 2 and 3.)

Figure 2.–A crop tree is straight and tall. Its relatively smooth bark is free of seams, breaks, and large wounds.

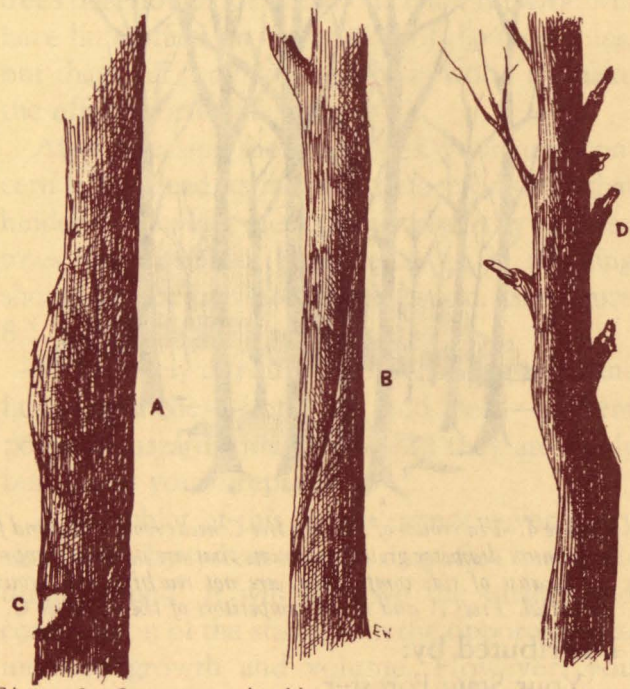

Figure 3.–Crop trees should not have: A. Swollen stems: B. Seams or breaks in the bark: C. Mechanical wounds caused by logging or other equipment: D. Poorly healed branch stubs. All of these defects indicate internal damage or disease. Such affected trees and crooked trees are best removed for firewood.

Look up into the crown. The crown of a crop tree needs three to four feet of open space on at least two sides. Those trees touching the crown of your crop tree are the competitors. They may be removed for fuelwood. (See figure 4.) In most cases, removing one or two side competitors will provide the crop tree with the space it needs, but don't hesitate to remove more if necessary.

The field procedure for selecting crop trees is this: start 10 to 20 feet into the stand or from the property line. Select a crop tree and identify it, either by tying a ribbon around it at breast height, or by using a spot of paint. Then, pace about 20 feet (eight steps) on a line parallel to the edge of

Figure 4.–The crown of the crop tree C needs room to expand for maximum diameter growth. Crowns that are narrow, compressed because of side competition, are not reaching full growth potential. Trees A and B are competitors of the crop tree C.

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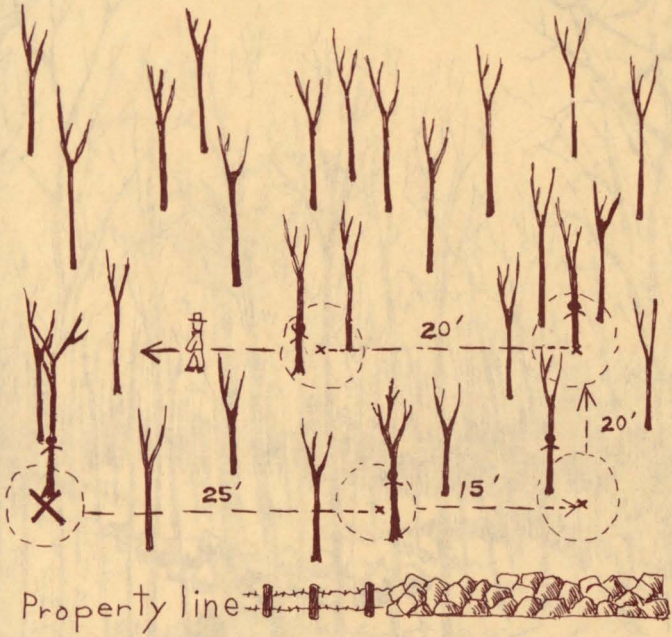

Figure 5.–Try to space crop trees 20 feet apart. You will end up with a sufficient number of trees per acre, spaced, in some instances, 15 feet apart and in others, 25 feet apart.

the stand or property line. Mark the closest crop tree within a 5-7 foot radius. If there are no trees that meet the crop tree specifications within this circle, pick the best of the lot and mark it. If there are no trees, pace out another 5 feet (two steps) and try again. If there aren't any trees within 7 feet of the second spot skip it and start over again at the next spot 20 feet away. (See figure 5.)

Follow this procedure until you reach the far edge of your stand or the distance you have previously decided to go into the stand.

When you reach the end of the first line, pace off 20 feet at a right angle to the first line. Pick a crop tree, mark it, then go back along a line parallel to the first line. Use the paint spots or ribbons on the crop trees of the first line to guide you as you proceed on the second line.

Ideally, you should pick a crop tree every 20 feet and release its crown. As nature doesn't space trees evenly, it is impossible to adhere rigidly to

this distance, but by using it as a guide you will end up with a sufficient number of released trees (about 100 per acre). As you walk through your stand, don't hesitate to pick a good crop tree even though it's growing within 15 feet of the last one. If it is impossible to locate an ideal crop tree within 25 feet, pick the best one you have.

This is a slow procedure at first. But as you gain experience and confidence in yourself, the work will progress faster and be most enjoyable.

THE HARVESTING OPERATION

After you have selected the crop trees for release, you can begin harvesting your stand. First, remove trees that touch or are too close to the crowns of the crop trees. They are direct competitors. (See figure 6.)

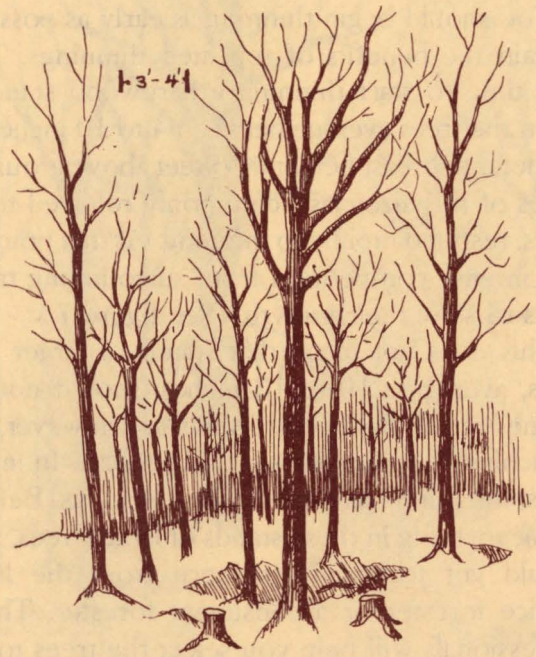

Figure 6.–Remove the side competitors on at least two sides, allowing from 3 to 4 feet between crowns.

In some high-quality stands, the trees to be removed are as high in quality as the crop tree. Although this may be disturbing, remember that most of the trees you are removing will not live to maturity. At some future time, they will be shaded out and die. Furthermore, the crop trees you release will grow faster so they will regain some of the growth you lose by removing the competition.

Sometimes a compromise is in order. If two high-quality trees are side by side, the best decision might be to accept both as crop trees and to release each on two sides.

In most polestands, there is an abundance of "understory" trees that are much smaller than the crop trees. Their crowns are seen below the crowns of the larger trees. In such a position, they are deprived of sunlight—nature's way of removing them from the stand. Harvest any understory trees big enough for firewood. Their removal will have little effect on the growth of the crop trees, but they will provide enough firewood to make the effort worthwhile (figure 7).

After releasing the crop trees, your next concern is the dead, dying, and deformed trees that hinder the development of the area. Any of these trees that have not been removed in thinning should also be harvested for firewood. (See figure 8.)

Work safely in your woodlot. Felling trees and falling branches—both live and dead—present potential hazards. Stay alert until they are safely burning in your fireplace.

A pamphlet of this length cannot cover every situation. The system though simplified is silviculturally sound. It will improve the quality and composition of the stand, with the opportunity to increase growth and volume. However, you should contact your local service forester before you start. He will help you to identify species and choose crop trees, and will clear up any problems you may have in thinning your woodlot.

Figure 7.—These smaller understory trees exist without full sunlight. Such suppressed trees, are also a source of firewood. Removing them improves the looks of your woodlot.

Figure 8.—Large, old and overmature "wolf trees" take up more than their share of growing space. You might consider giving their space to the next crop of seedlings.